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Introduction

For decades, electronic music has been in continuous development, producing hundreds of genres and sub-genres that have made a massive impact in the industry and also in society (especially in young generations). The aim of this essay is to analyze the defining characteristics of three electronic musical genres: ambient, hip hop electronic and future bass.

1. Ambient

Although it is true that Brian Eno is the most well-known representative of this genre (he was the one who coined the term 'ambient music'), Erik Satie was actually the first one of thinking about this concept during the early 20th century. He explored music for the first time in a way that was not the center of attention, but being instead something at the background, aiming for a passive listening.

However, it was not until 1970's that the genre was officially defined, with Eno's album *Ambient 1: Music for Airports* (1978). In the words of the ambient composer, "Ambient music must be able to accommodate many levels of listening attention without enforcing one in particular; it must be as ignorable as it is interesting." [a]

While commercial and popular music focuses on melodies, harmonies and rhythms, ambient it is based on textures and sounds. Rather than being define by certain musical characteristics or patterns, this genre relies on the emphasis of tone, atmosphere and sonic qualities. In fact, ambient music can most concisely be described as sonic wallpaper.

Although I have analyzed the original concept of the genre, I often mentioned more contemporary production techniques and concepts from *IDM* (intelligent dance music) electronic artists such as Moderat, Jon Hopkins, Rival Consoles or Max Cooper that are heavily influenced by earlier ambient acts, as we can listen to in some of their pieces. Likewise, the piece of music that I have created was inspired by and aimed to reflect more these contemporary artists rather than the origins of ambient music. These contemporary artists sit somewhere in between active and passive listening, giving freedom to the listener to approach the piece in different ways.

There is no a defined song length non tempo that suits or define every ambient piece. While some pieces of the 80's and 90's are more than half an hour, nowadays developed and ambience' influenced music tend to approach more commercial song lengths (between 2 and 6 minutes) that can create more dynamics and fit a more commercial product. That also affects the development of the tempo, which is normally more defined in nowadays ambient acts.

In terms of the arrangement, this genre it's not based on a traditional commercial structure (verse/chorus/verse/chorus/bridge/chorus) but on a more 'evolutionary' concept, which connects with how Brian Eno described his process as embracing the unintentional and the beauty of unexpected errors. [b]

One of the key aspects of the genre is how you approach the composition of the piece. Instead of start writing the whole song and then lay it down, ambient artists often start just with a simple melodic idea or, even simpler, just a tone. Other parts spring from there, often as the result of experimentation (normally based on using different sort of effects) – which leads to happy and not-so-happy accident. The trick is to follow the happy ones and simply ignore the rest, and then follow the more interesting and appealing new directions these parts suggest to you.

One of the main effects used on ambient music is reverb. To illustrate his importance in this genre, there are several composers (as Nils Frahm mentioned in an interview with Vinyl Factory) that often prefer to use natural reverbs, recording their records in spaces with beautiful sounding natural reverbs. [2] In this genre, reverbs are not use just as a production tool to give context and space to a mix, but they are use more as a sound design tool, using unusual parameters and spending a lot of time trying to find the perfect one. Ambient composer Robert Rich mentioned in his blog that for him the quality of the reverb matters more than the length or quantity. [c] In my track, I have used the Altiverb reverb plugin as main tool for generating space and depth, an impulse responses convolution reverb that has hundreds of presets of different natural reverbs that were recorded live. Besides reverb, delay and tape saturation are the other two most use effects used in creative ways in ambient and all his secondary genres.

Apart from the creative use of effects, layering is another production approach that defines this genre. For layering the glitchy sampled sounds that give texture to the track I have used the same sample but played with three different sampling parameters as Tuning, Speed and Formant Shift using Kontakt *time machine* mode as a sampler. [see Fig.1]

For the final mix the main purpose was placing all the sounds in a similar big space without losing definition and texture. For that, I used mainly saturation (Kramer Tape from Waves and RC-20 from XLN Audio), EQ's (also in reverbs), wide control plugins and compression.

2. Electronic Hip Hop

In its origins, hip hop music was developed in the United States of America in the 1970's and it was based on a stylized rhythmic pattern that commonly was accompanied by rapping, a rhythmic speech. The main elements of hip-hop songs were beats and basslines sampled from Funk, Soul, Gospel and Rock albums and probably the word that best defines the genre is *aggressive*, because hip hop it is aggressively produced, performed, recorded and engineered.

But the genre evolved at the same time that technology did, giving more space to bring new elements and instruments with more complexity and new sounds. One of them was the classic drum machine Roland TR-808, a revolutionary analog synthesizer and rhythm composer that allowed user to program their own rhythms instead of using preset patterns. That forced artists to think differently about not only the beat constructions but about flows and melodies, opening a new world of possibilities for this genre.

Electronic hip hop is a genre that blends rhythms, groove and vocal rapping from hip hop with electronic sounds (using mainly synthesizers) and a more intricate and complex production, avoiding the limitations that can produce using only samples (as in more standard hip hop).

The most prominent characteristic of electronic hip hop is an electronic element (processed vocal sample, synth hook melody or heavy bassline) over syncopated drums. The instrumental beats are clearly driven by these aspects, leading to the stereotypical "bobbing your head to the beat" that classic hip-hop causes.

In my track, the first element that I came up with was the vocal hook melody that drives the whole track. It was made with NI Kontakt Library Exhale. When I had something that could work as melody line, I spent a lot of time building a groove drum beat that worked with the melody. I used Ableton Live's Groove Pool feature to modify the timing and "feel" of the drum pattern until I found something that worked with the melody.

Once I had the drum pattern set, I then spent some time adding my sound style using reverbs (mainly a Plate reverb on the Snare and a gated type reverb with different parameters on the other rest of the drum kit) and distortion on different elements of the drums to add more texture and interest to the sound. Secondly, I used another production technique to add interesting layers and unexpected textures to the drums, which is bouncing the whole drum kit with all the effects and then reversing the audio file, chopping and time stretching the part that I felt that sounded more musical and interesting. [see Fig.2]

In terms of tempo, hip-hop songs normally are written in somewhere between 70-100 (or, at doubling time, 130 to 160) bpm. The 70-100 bpm range is ideally suited for rap vocals. Not too slow, but slow enough that the vocal "poetry" of "rhythm-and-poetry" (RAP) can really stand out. My track is written in 89 bpm.

The time signature usually is 4/4, with few exemptions in 2/4 or $\frac{3}{4}$, and the song length tends to be between 3 and 5 minutes.

Hip-hop structure often tends to be repetitive for giving a lot of possibilities to the rappers and make the audience enter into a certain mood or vibe, but in the electronic subgenre there is normally a more commercial pop structure. A good example would be the arrangement of "Flume (feat Vic Mensa) – Lose It":

Introduction – Verse 1 – Pre Chorus – Chorus (x2) – Verse 2 – Pre Chorus – Bridge – Pre Chorus Variation – Chorus 2 (x2) – Chorus 3 (x2) – Chorus 4/Outro

This is the perfect example of how electronic hip hop gives the same importance to the instrumental and the production as it gives to the rap (or, in some cases, the main thing that stand out is the instrumental rather than the vocal performance).

There is no a pre-defined structure as in pop, so artists try to find arrangements that helps the song to tell the story of the piece, having a well-balanced and dynamic structure. Some of them choose having long introductions that set the space of the track before the drum beat comes in, as in “Mazde – Neverland” or in our main reference track “Pham – Movements” (around 30 seconds of introduction), while others start straight with the beat.

One of the most important things of the mixing an electronic hip hop track is getting the bass sound (and feel) good and deep in big speakers but also on phone and laptop small speakers. For achieving that goal, parallel distortion is one of the most used techniques. That is because it allows to keep the low end clean while busting and creating new harmonics in the mid-range frequencies (the ones that are more prominent on small speakers) of the bass. This technique is based on using a distortion effect (I have used Decapitator from Soundtoys) on a send channel, using often a pre eq that cut the low frequencies around 100Hz and then sending the bass sound to that return channel, adjusting the amount of send until you find the ideal value.

Moreover, for processing the kick I used the analog equalizer emulation from Waves *Puig Tec EQP1A* for boosting a little bit the 100Hz frequencies and making it punching and cutting better through the mix. [5]

Secondly, automating the dry/wet of the reverb amount on the snare (more reverb every 2nd hit) is another common process that helps the track to have more dynamics and depth. I have use Abbey Road Plate reverb from Waves for this goal.

Finally, the vocal processing was divided in removing first things that could bother the listener, for bringing then the clean vocal in front of the mix making it bigger and crispier. I used DeEsser from Waves and Fab Filter Pro-Q2 for cleaning first the vocal and removing any unwanted frequency. After that, I used two different compressors. The first one was the emulation of the optical compressor CLA-2A (Waves), used with soft compression parameters just for reducing the dynamics of the vocal. For giving the vocals an extra push on the mix, I used the 1177 (FET type compressor) Waves emulation as a return channel for preserving the transient while using hard compression.

3. Future Bass

Future bass is a music genre that emerged around 2006. At that time, however, the genre was mostly underground, and it was only in the mid-2010s that artists such as Flume, Rustie, Wave Racer, or Cashmere Cat popularized it. But it was not until 2016 when the genre hit the radio charts, with pop artists such as Marshmello, the Chainsmokers or Martin Garrix incorporating some of its elements in their tracks.

Even though future bass kept the tools of previous popular electronic music genres (pumping bass lines, rhythmic percussive elements, and addictive melodies), it changed the structure and the style in which elements are presented. Indeed, its innovation and versatility using a wide palette of unusual sounds is one of the main reasons behind the popularization of the genre in the last few years. Moreover, the fact that future bass is difficult to define and characterize, is probably also one of its strengths.

Regarding instrumentation, a future bass track is normally focused on a big outstanding chord progression that works also as a melody line. These chords tend to be similar to common pop chord progressions (using mainly I, IV, V and VI harmonic degrees). Nonetheless, future bass chords tend to be more colorful, adding usually the 7th and the 9th of the intervals.

These chords are usually played by a few layers of saw waves that complement each other across the whole sonic spectrum. This is one of the key elements of achieving a good sounding future bass track. It doesn't matter which synthesizer you use (it can be hardware or a soft synth), but how you design and process the sound is what makes the difference. Adding various layers until you get to a rich and thick sound is usually necessary, but in my case I have only used three layers for the main synth (one for the low medium, another one for the mid-range frequencies and the last one for adding some extra high end and noise), all of them coming from Xfer Serum software synth.

That is because in my track the vocal sample and some Foley sounds complement the chords synths, whereas in some future bass tracks the chords synth is the only thing (apart from the kick and the snare) during some moments of the drop.

Regarding the chord progression of my track, I have used 7th and 9th chords and played with different inversions, instead of just using triad, adding a lot of color to the progression and helping the sound to be thicker, as most electronic artists do on this genre do.

Other defining elements of this style that I have used on my tracks are arpeggiated chords (during the 2nd chorus) and risers and different audio effects as filters or reverbs to smooth the transitions. When it comes to the drums, future bass tracks use a snare on every third beat for a half time beat, using similar samples often used in trap music. I have used polyrhythms and played with some kick repetitions to add interest and create a more dynamic drum pattern.

The tempo of a future bass track can range from 100-160bpm and it's always written in 4/4 time signature.

The arrangement of commercial future bass tends to follow a similar approach to pop music, starting with a melodic (a lot of times atmospheric) intro, followed by a verse and a pre chorus/build up that leads into the drop (chorus). After that, there is normally another verse and a bridge, before the final massive chorus drops. In this more commercial subgenre, the main thing of the piece of music is always the drop, having sometimes tedious verses that only function as a relief place to lower the energy before and after the massive chorus. As a result of this arrangement, future bass usually carries a hip-hop feel.

In more intricate and independent future bass though, the arrangement often varies from a classical pop structure, allowing the artist being more creative. Although my main reference track was “Flume – Heater”, I found during the production of my piece that a structure similar to the song “Ganz – Fly With Me” was more appropriate.

Lastly, for mixing this track I decided to do first just a static mix (adjusting only volume faders) and grouping all the different layers until I only got 30 channels to mix, before starting any compression or eq processing. That helped me to understand what things needed more attention and correction during the mixing process, something important when you are working with a due date. After setting a rough mix balance, I used a lot of subtractive eq to help the most important instruments to get more definition and space in the mix.

Conclusion

The three chosen genres and its corresponding reference tracks show the complexity and diversity of electronic music nowadays. While future bass and electronic hip hop are more oriented towards shows at festivals and clubs, ambient music is finding a new direction and meaning as a useful tool in medical practice, helping a lot of patients reducing their anxiety and improving their mood by simply listening to a piece of ambient.

There is still much to be learned and explored about the power and the future of electronic music, accommodating new ideas and topics to be studied in the next few years.

APPENDIX: FIGURES and PRIMARY RESEARCH (from studying songs and stems)

Fig.1: Layering the same audio sample but using different sampling parameters in each layer

Layer 1



Layer 2

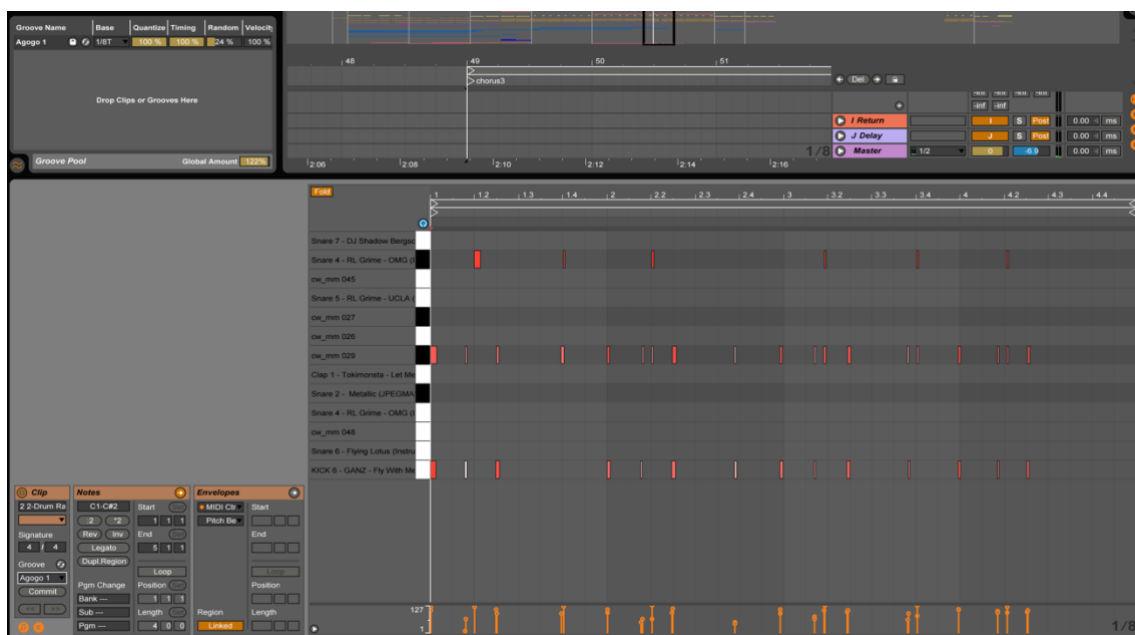


Layer 3

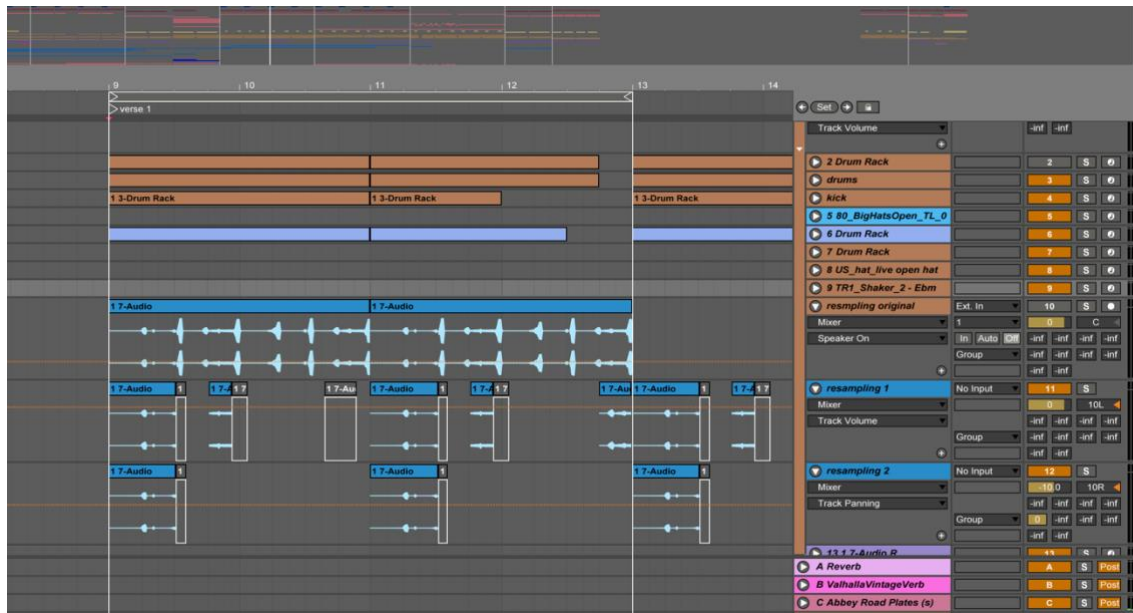


Fig.2: Drums groove and layering textures creation

Using Ableton's Groove Pool



Resampling drums



Bibliography of Secondary Research:

Holmes, Thom (2008). "Electronic and Experimental Music: Technology, Music and Culture."

Neumann, Friedrich (2000). "Hip hop: Origins, Characteristics and Creative Processes" *The World of Music* Vol. 42, No. 1, Gothic, Metal, Rap, and Rave - Youth Culture and Its Educational Dimensions (2000), pp. 51-63

Senior, Mike. (2011) *Mixing secrets for the small studio*. Burlington, MA: Focal Press.

Owsinski, Bobby (2017) "The Mixing Engineer's Handbook 4th Edition "

Video interviews with producers and mixing engineers of these genres:

- [1] Brian Eno: <https://www.youtube.com/watch?v=cv7epY75Wa0>
- [2] Nils Frahm: https://www.youtube.com/watch?v=p_RKVUMaPek
- [4] Lu Diaz: <https://www.youtube.com/watch?v=q7l0kcstgIM>
- [5] Leslie Brathwaite: <https://www.youtube.com/watch?v=Rdw771nS5YA>

Other referenced links:

- [a] <https://www.thenational.ae/arts-culture/music/the-joys-of-ambient-music-1.736486>
- [b] <https://www.soundonsound.com/techniques/sound-design-ambient-music>
- [c] <https://robertrich.com/gear-talk/>
- [d] <https://reverbmachine.com/blog/deconstructing-brian-eno-music-for-airports>
- [e] <https://modeaudio.com/magazine/ambient-5-production-essentials>
- [f] <https://www.izotope.com/en/learn/the-5-most-important-developments-in-hip-hop-production.html>
- [g] <https://soundontime.com/future-bass/>